

SEQUENCE LISTING

<110> Yu, Qin
 <120> Angiopoietin and Fragments, Mutants, and Analogs Thereof and Uses of the Same
 <130> UPN0003-100 (P3115)
 <150> US 60/450,582
 <151> 2003-02-27
 <160> 36
 <170> PatentIn version 3.2
 <210> 1
 <211> 20
 <212> PRT
 <213> Homo sapiens
 <400> 1

Leu Cys Thr Lys Glu Gly Val Leu Leu Lys Gly Gly Lys Arg Glu Glu
 1 5 10 15

Glu Lys Pro Phe
 20

<210> 2
 <211> 20
 <212> PRT
 <213> mouse

<400> 2

Leu Cys Thr Lys Glu Gly Val Leu Leu Lys Gly Gly Lys Arg Glu Glu
 1 5 10 15

Glu Lys Pro Phe
 20

<210> 3
 <211> 42
 <212> PRT
 <213> Homo sapiens

<400> 3`

Asn Gln Arg Arg Ser Pro Glu Asn Ser Gly Arg Arg Tyr Asn Arg Ile
 1 5 10 15

Gln His Gly Gln Cys Ala Tyr Thr Phe Ile Leu Pro Glu His Asp Gly
 20 25 30

Asn Cys Arg Glu Ser Thr Thr Asp Gln Tyr
 35 40

<210> 4
 <211> 42
 <212> PRT
 <213> mouse

<400> 4

Asn Gln Arg Arg Asn Pro Glu Asn Gly Gly Arg Arg Tyr Asn Arg Ile
 1 5 10 15

Gln His Gly Gln Cys Ala Tyr Thr Phe Ile Leu Pro Glu His Asp Gly
 20 25 30

Asn Cys Arg Glu Ser Ala Thr Glu Gln Tyr
 35 40

<210> 5
 <211> 471
 <212> PRT
 <213> Homo sapiens

<400> 5

Met Thr Val Phe Leu Ser Phe Ala Phe Leu Ala Ala Ile Leu Thr His
 1 5 10 15

Ile Gly Cys Ser Asn Gln Arg Arg Ser Pro Glu Asn Ser Gly Arg Arg
 20 25 30

Tyr Asn Arg Ile Gln His Gly Gln Cys Ala Tyr Thr Phe Ile Leu Pro
 35 40 45

Glu His Asp Gly Asn Cys Arg Glu Ser Thr Thr Asp Gln Tyr Asn Thr
 50 55 60

Asn Ala Leu Gln Arg Asp Ala Pro His Val Glu Pro Asp Phe Ser Ser
 65 70 75 80

Gln Lys Leu Gln His Leu Glu His Val Met Glu Asn Tyr Thr Gln Trp
 85 90 95

Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu Asn Met Lys Ser Glu Met
 100 105 110

Ala Gln Ile Gln Gln Asn Ala Val Gln Asn His Thr Ala Thr Met Leu
 115 120 125

Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr Ala Glu Gln Thr Arg Lys
 130 135 140

Leu Thr Asp Val Glu Thr Gln Val Leu Asn Gln Thr Ser Arg Leu Glu
 145 150 155 160

Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr Tyr Lys Leu Glu Lys Gln
 165 170 175

Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys Ile His Glu Lys Asn Ser
 180 185 190

Leu Leu Glu His Lys Ile Leu Glu Met Glu Gly Lys His Lys Glu Glu
 195 200 205

Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn Leu Gln Gly Leu Val Thr
 210 215 220

Arg Gln Thr Tyr Ile Ile Gln Glu Leu Glu Lys Gln Leu Asn Arg Ala
 225 230 235 240

Thr Thr Asn Asn Ser Val Leu Gln Lys Gln Gln Leu Glu Leu Met Asp
 245 250 255

Thr Arg Asp Cys Ala Asp Val Tyr Gln Ala Gly Phe Asn Lys Ser Gly
 260 265 270

Ile Tyr Thr Ile Tyr Ile Asn Asn Met Pro Glu Pro Lys Lys Val Phe
 275 280 285

Cys Asn Met Asp Val Asn Gly Gly Gly Trp Thr Val Ile Gln His Arg
 290 295 300

Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly Trp Lys Glu Tyr Lys Met
 305 310 315 320

Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp Leu Gly Asn Glu Phe Ile
 325 330 335

Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met Leu Arg Ile Glu Leu Met
 340 345 350

Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln Tyr Asp Arg Phe His Ile
 355 360 365

Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr Leu Lys Gly His Thr Gly
 370 375 380

Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu His Gly Ala Asp Phe Ser
 385 390 395 400

Thr Lys Asp Ala Asp Asn Asp Asn Cys Met Cys Lys Cys Ala Leu Met
 405 410 415

Leu Thr Gly Gly Trp Phe Asp Ala Cys Gly Pro Ser Asn Leu Asn Gly
 420 425 430

Met Phe Tyr Thr Ala Gly Gln Asn His Gly Lys Leu Asn Gly Ile Lys
 435 440 445

Trp His Tyr Phe Lys Gly Pro Ser Tyr Ser Leu Arg Ser Thr Thr Met
 450 455 460

Met Ile Arg Pro Leu Asp Phe
 465 470

<210> 6
 <211> 472
 <212> PRT
 <213> mouse

<400> 6

Met Thr Val Phe Leu Ser Phe Ala Phe Phe Ala Ala Ile Leu Thr His
 1 5 10 15

Ile Gly Cys Ser Asn Gln Arg Arg Asn Pro Glu Asn Gly Gly Arg Arg
 20 25 30

Tyr Asn Arg Ile Gln His Gly Gln Cys Ala Tyr Thr Phe Ile Leu Pro
 35 40 45

Glu His Asp Gly Asn Cys Arg Glu Ser Ala Thr Glu Gln Tyr Asn Thr
 50 55 60

Asn Ala Leu Gln Arg Asp Ala Pro His Val Glu Pro Asp Phe Ser Ser
 65 70 75 80

Gln Lys Leu Gln His Leu Glu His Val Met Glu Asn Tyr Thr Gln Trp
 85 90 95

Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu Asn Met Lys Ser Glu Met
 100 105 110

Ala Gln Ile Gln Gln Asn Ala Val Gln Asn His Thr Ala Thr Met Leu
 115 120 125

Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr Ala Glu Gln Thr Arg Lys
 130 135 140

Leu Thr Asp Val Glu Thr Gln Val Leu Asn Gln Thr Ser Arg Leu Glu
 145 150 155 160

Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr Tyr Lys Leu Glu Lys Gln
 165 170 175

Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys Ile His Glu Lys Asn Ser
 180 185 190

Leu Leu Glu His Lys Ile Leu Glu Met Glu Gly Lys His Lys Glu Glu
 195 200 205

Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn Leu Gln Gly Leu Val Ser
 210 215 220

Arg Gln Thr Phe Ile Ile Gln Glu Leu Glu Lys Gln Leu Ser Arg Ala
 225 230 235 240

Thr Asn Asn Asn Ser Ile Leu Gln Lys Gln Gln Leu Glu Leu Met Asp
 245 250 255

Thr Arg Asp Cys Ala Asp Val Tyr Gln Ala Gly Phe Asn Lys Ser Gly
 260 265 270

Ile Tyr Thr Ile Tyr Phe Asn Asn Met Pro Glu Pro Lys Lys Val Phe
 275 280 285

Cys Asn Met Asp Val Asn Gly Gly Gly Trp Thr Val Ile Gln His Arg
 290 295 300

Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly Trp Lys Glu Tyr Lys Met
 305 310 315 320

Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp Leu Gly Asn Glu Phe Ile
 325 330 335

Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met Leu Arg Ile Glu Leu Met
 340 345 350

Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln Tyr Asp Arg Phe His Ile
 355 360 365

Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr Leu Lys Gly His Thr Gly
 370 375 380

Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu His Gly Ala Asp Phe Ser
 385 390 395 400

Thr Lys Asp Ala Asp Asn Asp Asn Cys Met Cys Lys Cys Ala Leu Met
 405 410 415

Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys Gly Pro Ser Asn Leu Asn
 420 425 430

Gly Met Phe Tyr Thr Ala Gly Gln Asn His Gly Lys Leu Asn Gly Ile
435 440 445

Lys Trp His Tyr Phe Lys Gly Pro Ser Tyr Ser Leu Arg Ser Thr Thr
450 455 460

Met Met Ile Arg Pro Leu Asp Phe
465 470

<210> 7
<211> 456
<212> PRT
<213> Homo sapiens

<400> 7

Met Thr Val Phe Leu Ser Phe Ala Phe Leu Ala Ala Ile Leu Thr His
1 5 10 15

Ile Gly Cys Ser Asn Thr Asn Ala Leu Gln Arg Asp Ala Pro His Val
20 25 30

Glu Pro Asp Phe Ser Ser Gln Lys Leu Gln His Leu Glu His Val Met
35 40 45

Glu Asn Tyr Thr Gln Trp Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu
50 55 60

Asn Met Lys Ser Glu Met Ala Gln Ile Gln Gln Asn Ala Val Gln Asn
65 70 75 80

His Thr Ala Thr Met Leu Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr
85 90 95

Ala Glu Gln Thr Arg Lys Leu Thr Asp Val Glu Thr Gln Val Leu Asn
100 105 110

Gln Thr Ser Arg Leu Glu Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr
115 120 125

Tyr Lys Leu Glu Lys Gln Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys
130 135 140

Ile His Glu Lys Asn Ser Leu Leu Glu His Lys Ile Leu Glu Met Glu
145 150 155 160

Gly Lys His Lys Glu Glu Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn
165 170 175

Leu Gln Gly Leu Val Thr Arg Gln Thr Tyr Ile Ile Gln Glu Leu Glu
6

180	185	190
Lys Gln Leu Asn Arg Ala Thr Thr Asn Asn Ser Val Leu Gln Lys Gln		
195	200	205
Gln Leu Glu Leu Met Asp Thr Val His Asn Leu Val Asn Leu Cys Thr		
210	215	220
Lys Glu Gly Val Leu Leu Lys Gly Gly Lys Arg Glu Glu Glu Lys Pro		
225	230	235
Phe Arg Asp Cys Ala Asp Val Tyr Gln Ala Gly Phe Asn Lys Ser Gly		
245	250	255
Ile Tyr Thr Ile Tyr Ile Asn Asn Met Pro Glu Pro Lys Lys Val Phe		
260	265	270
Cys Asn Met Asp Val Asn Gly Gly Gly Trp Thr Val Ile Gln His Arg		
275	280	285
Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly Trp Lys Glu Tyr Lys Met		
290	295	300
Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp Leu Gly Asn Glu Phe Ile		
305	310	315
Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met Leu Arg Ile Glu Leu Met		
325	330	335
Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln Tyr Asp Arg Phe His Ile		
340	345	350
Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr Leu Lys Gly His Thr Gly		
355	360	365
Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu His Gly Ala Asp Phe Ser		
370	375	380
Thr Lys Asp Ala Asp Asn Asp Asn Cys Met Cys Lys Cys Ala Leu Met		
385	390	395
Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys Gly Pro Ser Asn Leu Asn		
405	410	415
Gly Met Phe Tyr Thr Ala Gly Gln Asn His Gly Lys Leu Asn Gly Ile		
420	425	430
Lys Trp His Tyr Phe Lys Gly Pro Ser Tyr Ser Leu Arg Ser Thr Thr		
435	440	445

Met Met Ile Arg Pro Leu Asp Phe
 450 455

<210> 8
 <211> 456
 <212> PRT
 <213> mouse

<400> 8

Met Thr Val Phe Leu Ser Phe Ala Phe Phe Ala Ala Ile Leu Thr His
 1 5 10 15

Ile Gly Cys Ser Asn Thr Asn Ala Leu Gln Arg Asp Ala Pro His Val
 20 25 30

Glu Pro Asp Phe Ser Ser Gln Lys Leu Gln His Leu Glu His Val Met
 35 40 45

Glu Asn Tyr Thr Gln Trp Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu
 50 55 60

Asn Met Lys Ser Glu Met Ala Gln Ile Gln Gln Asn Ala Val Gln Asn
 65 70 75 80

His Thr Ala Thr Met Leu Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr
 85 90 95

Ala Glu Gln Thr Arg Lys Leu Thr Asp Val Glu Thr Gln Val Leu Asn
 100 105 110

Gln Thr Ser Arg Leu Glu Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr
 115 120 125

Tyr Lys Leu Glu Lys Gln Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys
 130 135 140

Ile His Glu Lys Asn Ser Leu Leu Glu His Lys Ile Leu Glu Met Glu
 145 150 155 160

Gly Lys His Lys Glu Glu Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn
 165 170 175

Leu Gln Gly Leu Val Ser Arg Gln Thr Phe Ile Ile Gln Glu Leu Glu
 180 185 190

Lys Gln Leu Ser Arg Ala Thr Asn Asn Asn Ser Ile Leu Gln Lys Gln
 195 200 205

Gln Leu Glu Leu Met Asp Thr Val His Asn Leu Val Ser Leu Cys Thr
 210 215 220
 Lys Glu Gly Val Leu Leu Lys Gly Gly Lys Arg Glu Glu Glu Lys Pro
 225 230 235 240
 Phe Arg Asp Cys Ala Asp Val Tyr Gln Ala Gly Phe Asn Lys Ser Gly
 245 250 255
 Ile Tyr Thr Ile Tyr Phe Asn Asn Met Pro Glu Pro Lys Lys Val Phe
 260 265 270
 Cys Asn Met Asp Val Asn Gly Gly Gly Trp Thr Val Ile Gln His Arg
 275 280 285
 Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly Trp Lys Glu Tyr Lys Met
 290 295 300
 Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp Leu Gly Asn Glu Phe Ile
 305 310 315 320
 Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met Leu Arg Ile Glu Leu Met
 325 330 335
 Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln Tyr Asp Arg Phe His Ile
 340 345 350
 Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr Leu Lys Gly His Thr Gly
 355 360 365
 Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu His Gly Ala Asp Phe Ser
 370 375 380
 Thr Lys Asp Ala Asp Asn Asp Asn Cys Met Cys Lys Cys Ala Leu Met
 385 390 395 400
 Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys Gly Pro Ser Asn Leu Asn
 405 410 415
 Gly Met Phe Tyr Thr Ala Gly Gln Asn His Gly Lys Leu Asn Gly Ile
 420 425 430
 Lys Trp His Tyr Phe Lys Gly Pro Ser Tyr Ser Leu Arg Ser Thr Thr
 435 440 445
 Met Met Ile Arg Pro Leu Asp Phe
 450 455

<210> 9

<211> 430
 <212> PRT
 <213> Homo sapiens
 <400> 9

Met Thr Val Phe Leu Ser Phe Ala Phe Leu Ala Ala Ile Leu Thr His
 1 5 10 15

Ile Gly Cys Ser Asn Thr Asn Ala Leu Gln Arg Asp Ala Pro His Val
 20 25 30

Glu Pro Asp Phe Ser Ser Gln Lys Leu Gln His Leu Glu His Val Met
 35 40 45

Glu Asn Tyr Thr Gln Trp Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu
 50 55 60

Asn Met Lys Ser Glu Met Ala Gln Ile Gln Gln Asn Ala Val Gln Asn
 65 70 75 80

His Thr Ala Thr Met Leu Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr
 85 90 95

Ala Glu Gln Thr Arg Lys Leu Thr Asp Val Glu Thr Gln Val Leu Asn
 100 105 110

Gln Thr Ser Arg Leu Glu Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr
 115 120 125

Tyr Lys Leu Glu Lys Gln Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys
 130 135 140

Ile His Glu Lys Asn Ser Leu Leu Glu His Lys Ile Leu Glu Met Glu
 145 150 155 160

Gly Lys His Lys Glu Glu Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn
 165 170 175

Leu Gln Gly Leu Val Thr Arg Gln Thr Tyr Ile Ile Gln Glu Leu Glu
 180 185 190

Lys Gln Leu Asn Arg Ala Thr Thr Asn Asn Ser Val Leu Gln Lys Gln
 195 200 205

Gln Leu Glu Leu Met Asp Thr Arg Asp Cys Ala Asp Val Tyr Gln Ala
 210 215 220

Gly Phe Asn Lys Ser Gly Ile Tyr Thr Ile Tyr Ile Asn Asn Met Pro
 225 230 235 240

Glu Pro Lys Lys Val Phe Cys Asn Met Asp Val Asn Gly Gly Gly Trp
245 250 255

Thr Val Ile Gln His Arg Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly
260 265 270

Trp Lys Glu Tyr Lys Met Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp
275 280 285

Leu Gly Asn Glu Phe Ile Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met
290 295 300

Leu Arg Ile Glu Leu Met Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln
305 310 315 320

Tyr Asp Arg Phe His Ile Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr
325 330 335

Leu Lys Gly His Thr Gly Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu
340 345 350

His Gly Ala Asp Phe Ser Thr Lys Asp Ala Asp Asn Asp Asn Cys Met
355 360 365

Cys Lys Cys Ala Leu Met Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys
370 375 380

Gly Pro Ser Asn Leu Asn Gly Met Phe Tyr Thr Ala Gly Gln Asn His
385 390 395 400

Gly Lys Leu Asn Gly Ile Lys Trp His Tyr Phe Lys Gly Pro Ser Tyr
405 410 415

Ser Leu Arg Ser Thr Thr Met Met Ile Arg Pro Leu Asp Phe
420 425 430

<210> 10
<211> 430
<212> PRT
<213> mouse

<400> 10

Met Thr Val Phe Leu Ser Phe Ala Phe Phe Ala Ala Ile Leu Thr His
1 5 10 15

Ile Gly Cys Ser Asn Thr Asn Ala Leu Gln Arg Asp Ala Pro His Val
20 25 30

Glu Pro Asp Phe Ser Ser Gln Lys Leu Gln His Leu Glu His Val Met
11

35

40

45

Glu Asn Tyr Thr Gln Trp Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu
50 55 60

Asn Met Lys Ser Glu Met Ala Gln Ile Gln Gln Asn Ala Val Gln Asn
65 70 75 80

His Thr Ala Thr Met Leu Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr
85 90 95

Ala Glu Gln Thr Arg Lys Leu Thr Asp Val Glu Thr Gln Val Leu Asn
100 105 110

Gln Thr Ser Arg Leu Glu Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr
115 120 125

Tyr Lys Leu Glu Lys Gln Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys
130 135 140

Ile His Glu Lys Asn Ser Leu Leu Glu His Lys Ile Leu Glu Met Glu
145 150 155 160

Gly Lys His Lys Glu Glu Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn
165 170 175

Leu Gln Gly Leu Val Ser Arg Gln Thr Phe Ile Ile Gln Glu Leu Glu
180 185 190

Lys Gln Leu Ser Arg Ala Thr Asn Asn Asn Ser Ile Leu Gln Lys Gln
195 200 205

Gln Leu Glu Leu Met Asp Thr Arg Asp Cys Ala Asp Val Tyr Gln Ala
210 215 220

Gly Phe Asn Lys Ser Gly Ile Tyr Thr Ile Tyr Phe Asn Asn Met Pro
225 230 235 240

Glu Pro Lys Lys Val Phe Cys Asn Met Asp Val Asn Gly Gly Gly Trp
245 250 255

Thr Val Ile Gln His Arg Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly
260 265 270

Trp Lys Glu Tyr Lys Met Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp
275 280 285

Leu Gly Asn Glu Phe Ile Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met
290 295 300

Leu Arg Ile Glu Leu Met Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln
 305 310 315 320

Tyr Asp Arg Phe His Ile Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr
 325 330 335

Leu Lys Gly His Thr Gly Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu
 340 345 350

His Gly Ala Asp Phe Ser Thr Lys Asp Ala Asp Asn Asp Asn Cys Met
 355 360 365

Cys Lys Cys Ala Leu Met Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys
 370 375 380

Gly Pro Ser Asn Leu Asn Gly Met Phe Tyr Thr Ala Gly Gln Asn His
 385 390 395 400

Gly Lys Leu Asn Gly Ile Lys Trp His Tyr Phe Lys Gly Pro Ser Tyr
 405 410 415

Ser Leu Arg Ser Thr Thr Met Met Ile Arg Pro Leu Asp Phe
 420 425 430

<210> 11
 <211> 235
 <212> PRT
 <213> Homo sapiens

<400> 11

Met Thr Val Phe Leu Ser Phe Ala Phe Leu Ala Ala Ile Leu Thr His
 1 5 10 15

Ile Gly Cys Ser Arg Asp Cys Ala Asp Val Tyr Gln Ala Gly Phe Asn
 20 25 30

Lys Ser Gly Ile Tyr Thr Ile Tyr Ile Asn Asn Met Pro Glu Pro Lys
 35 40 45

Lys Val Phe Cys Asn Met Asp Val Asn Gly Gly Gly Trp Thr Val Ile
 50 55 60

Gln His Arg Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly Trp Lys Glu
 65 70 75 80

Tyr Lys Met Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp Leu Gly Asn
 85 90 95

Glu Phe Ile Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met Leu Arg Ile
 100 105 110

Glu Leu Met Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln Tyr Asp Arg
 115 120 125

Phe His Ile Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr Leu Lys Gly
 130 135 140

His Thr Gly Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu His Gly Ala
 145 150 155 160

Asp Phe Ser Thr Lys Asp Ala Asp Asn Asp Asn Cys Met Cys Lys Cys
 165 170 175

Ala Leu Met Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys Gly Pro Ser
 180 185 190

Asn Leu Asn Gly Met Phe Tyr Thr Ala Gly Gln Asn His Gly Lys Leu
 195 200 205

Asn Gly Ile Lys Trp His Tyr Phe Lys Gly Pro Ser Tyr Ser Leu Arg
 210 215 220

Ser Thr Thr Met Met Ile Arg Pro Leu Asp Phe
 225 230 235

<210> 12
 <211> 235
 <212> PRT
 <213> mouse

<400> 12

Met Thr Val Phe Leu Ser Phe Ala Phe Phe Ala Ala Ile Leu Thr His
 1 5 10 15

Ile Gly Cys Ser Arg Asp Cys Ala Asp Val Tyr Gln Ala Gly Phe Asn
 20 25 30

Lys Ser Gly Ile Tyr Thr Ile Tyr Phe Asn Asn Met Pro Glu Pro Lys
 35 40 45

Lys Val Phe Cys Asn Met Asp Val Asn Gly Gly Gly Trp Thr Val Ile
 50 55 60

Gln His Arg Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly Trp Lys Glu
 65 70 75 80

Tyr Lys Met Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp Leu Gly Asn
 85 90 95

Glu Phe Ile Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met Leu Arg Ile
100 105 110

Glu Leu Met Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln Tyr Asp Arg
115 120 125

Phe His Ile Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr Leu Lys Gly
130 135 140

His Thr Gly Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu His Gly Ala
145 150 155 160

Asp Phe Ser Thr Lys Asp Ala Asp Asn Asp Asn Cys Met Cys Lys Cys
165 170 175

Ala Leu Met Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys Gly Pro Ser
180 185 190

Asn Leu Asn Gly Met Phe Tyr Thr Ala Gly Gln Asn His Gly Lys Leu
195 200 205

Asn Gly Ile Lys Trp His Tyr Phe Lys Gly Pro Ser Tyr Ser Leu Arg
210 215 220

Ser Thr Thr Met Met Ile Arg Pro Leu Asp Phe
225 230 235

<210> 13
<211> 498
<212> PRT
<213> Homo sapiens

<400> 13

Met Thr Val Phe Leu Ser Phe Ala Phe Leu Ala Ala Ile Leu Thr His
1 5 10 15

Ile Gly Cys Ser Asn Gln Arg Arg Ser Pro Glu Asn Ser Gly Arg Arg
20 25 30

Tyr Asn Arg Ile Gln His Gly Gln Cys Ala Tyr Thr Phe Ile Leu Pro
35 40 45

Glu His Asp Gly Asn Cys Arg Glu Ser Thr Thr Asp Gln Tyr Asn Thr
50 55 60

Asn Ala Leu Gln Arg Asp Ala Pro His Val Glu Pro Asp Phe Ser Ser
65 70 75 80

Gln	Lys	Leu	Gln	His	Leu	Glu	His	Val	Met	Glu	Asn	Tyr	Thr	Gln	Trp
				85					90					95	
Leu	Gln	Lys	Leu	Glu	Asn	Tyr	Ile	Val	Glu	Asn	Met	Lys	Ser	Glu	Met
			100					105					110		
Ala	Gln	Ile	Gln	Gln	Asn	Ala	Val	Gln	Asn	His	Thr	Ala	Thr	Met	Leu
		115					120					125			
Glu	Ile	Gly	Thr	Ser	Leu	Leu	Ser	Gln	Thr	Ala	Glu	Gln	Thr	Arg	Lys
	130					135					140				
Leu	Thr	Asp	Val	Glu	Thr	Gln	Val	Leu	Asn	Gln	Thr	Ser	Arg	Leu	Glu
145					150					155					160
Ile	Gln	Leu	Leu	Glu	Asn	Ser	Leu	Ser	Thr	Tyr	Lys	Leu	Glu	Lys	Gln
				165					170					175	
Leu	Leu	Gln	Gln	Thr	Asn	Glu	Ile	Leu	Lys	Ile	His	Glu	Lys	Asn	Ser
			180					185					190		
Leu	Leu	Glu	His	Lys	Ile	Leu	Glu	Met	Glu	Gly	Lys	His	Lys	Glu	Glu
		195					200					205			
Leu	Asp	Thr	Leu	Lys	Glu	Glu	Lys	Glu	Asn	Leu	Gln	Gly	Leu	Val	Thr
	210					215					220				
Arg	Gln	Thr	Tyr	Ile	Ile	Gln	Glu	Leu	Glu	Lys	Gln	Leu	Asn	Arg	Ala
225					230					235					240
Thr	Thr	Asn	Asn	Ser	Val	Leu	Gln	Lys	Gln	Gln	Leu	Glu	Leu	Met	Asp
				245					250					255	
Thr	Val	His	Asn	Leu	Val	Asn	Leu	Cys	Thr	Lys	Glu	Gly	Val	Leu	Leu
			260					265					270		
Lys	Gly	Gly	Lys	Arg	Glu	Glu	Glu	Lys	Pro	Phe	Arg	Asp	Cys	Ala	Asp
		275					280					285			
Val	Tyr	Gln	Ala	Gly	Phe	Asn	Lys	Ser	Gly	Ile	Tyr	Thr	Ile	Tyr	Ile
	290					295					300				
Asn	Asn	Met	Pro	Glu	Pro	Lys	Lys	Val	Phe	Cys	Asn	Met	Asp	Val	Asn
305					310					315					320
Gly	Gly	Gly	Trp	Thr	Val	Ile	Gln	His	Arg	Glu	Asp	Gly	Ser	Leu	Asp
				325					330					335	
Phe	Gln	Arg	Gly	Trp	Lys	Glu	Tyr	Lys	Met	Gly	Phe	Gly	Asn	Pro	Ser
										16					

Asn Ala Leu Gln Arg Asp Ala Pro His Val Glu Pro Asp Phe Ser Ser
 65 70 75 80

Gln Lys Leu Gln His Leu Glu His Val Met Glu Asn Tyr Thr Gln Trp
 85 90 95

Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu Asn Met Lys Ser Glu Met
 100 105 110

Ala Gln Ile Gln Gln Asn Ala Val Gln Asn His Thr Ala Thr Met Leu
 115 120 125

Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr Ala Glu Gln Thr Arg Lys
 130 135 140

Leu Thr Asp Val Glu Thr Gln Val Leu Asn Gln Thr Ser Arg Leu Glu
 145 150 155 160

Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr Tyr Lys Leu Glu Lys Gln
 165 170 175

Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys Ile His Glu Lys Asn Ser
 180 185 190

Leu Leu Glu His Lys Ile Leu Glu Met Glu Gly Lys His Lys Glu Glu
 195 200 205

Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn Leu Gln Gly Leu Val Ser
 210 215 220

Arg Gln Thr Phe Ile Ile Gln Glu Leu Glu Lys Gln Leu Ser Arg Ala
 225 230 235 240

Thr Asn Asn Asn Ser Ile Leu Gln Lys Gln Gln Leu Glu Leu Met Asp
 245 250 255

Thr Val His Asn Leu Val Ser Leu Cys Thr Lys Glu Gly Val Leu Leu
 260 265 270

Lys Gly Gly Lys Arg Glu Glu Glu Lys Pro Phe Arg Asp Cys Ala Asp
 275 280 285

Val Tyr Gln Ala Gly Phe Asn Lys Ser Gly Ile Tyr Thr Ile Tyr Phe
 290 295 300

Asn Asn Met Pro Glu Pro Lys Lys Val Phe Cys Asn Met Asp Val Asn
 305 310 315 320

Gly Gly Gly Trp Thr Val Ile Gln His Arg Glu Asp Gly Ser Leu Asp
325 330 335

Phe Gln Arg Gly Trp Lys Glu Tyr Lys Met Gly Phe Gly Asn Pro Ser
340 345 350

Gly Glu Tyr Trp Leu Gly Asn Glu Phe Ile Phe Ala Ile Thr Ser Gln
355 360 365

Arg Gln Tyr Met Leu Arg Ile Glu Leu Met Asp Trp Glu Gly Asn Arg
370 375 380

Ala Tyr Ser Gln Tyr Asp Arg Phe His Ile Gly Asn Glu Lys Gln Asn
385 390 400

Tyr Arg Leu Tyr Leu Lys Gly His Thr Gly Thr Ala Gly Lys Gln Ser
405 410 415

Ser Leu Ile Leu His Gly Ala Asp Phe Ser Thr Lys Asp Ala Asp Asn
420 425 430

Asp Asn Cys Met Cys Lys Cys Ala Leu Met Leu Thr Gly Gly Trp Trp
435 440 445

Phe Asp Ala Cys Gly Pro Ser Asn Leu Asn Gly Met Phe Tyr Thr Ala
450 455 460

Gly Gln Asn His Gly Lys Leu Asn Gly Ile Lys Trp His Tyr Phe Lys
465 470 475 480

Gly Pro Ser Tyr Ser Leu Arg Ser Thr Thr Met Met Ile Arg Pro Leu
485 490 495

Asp Phe

<210> 15
<211> 496
<212> PRT
<213> Homo sapiens

<400> 15

Met Trp Gln Ile Val Phe Phe Thr Leu Ser Cys Asp Leu Val Leu Ala
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Ala Ala Tyr Asn Asn Phe Arg Lys Ser Met Asp Ser Ile Gly Lys Lys
20 25 30

Gln Tyr Gln Val Gln His Gly Ser Cys Ser Tyr Thr Phe Leu Leu Pro
35 40 45

Glu Met Asp Asn Cys Arg Ser Ser Ser Ser Pro Tyr Val Ser Asn Ala
 50 55 60

Val Gln Arg Asp Ala Pro Leu Glu Tyr Asp Asp Ser Val Gln Arg Leu
 65 70 75 80

Gln Val Leu Glu Asn Ile Met Glu Asn Asn Thr Gln Trp Leu Met Lys
 85 90 95

Leu Glu Asn Tyr Ile Gln Asp Asn Met Lys Lys Glu Met Val Glu Ile
 100 105 110

Gln Gln Asn Ala Val Gln Asn Gln Thr Ala Val Met Ile Glu Ile Gly
 115 120 125

Thr Asn Leu Leu Asn Gln Thr Ala Glu Gln Thr Arg Lys Leu Thr Asp
 130 135 140

Val Glu Ala Gln Val Leu Asn Gln Thr Thr Arg Leu Glu Leu Gln Leu
 145 150 155 160

Leu Glu His Ser Leu Ser Thr Asn Lys Leu Glu Lys Gln Ile Leu Asp
 165 170 175

Gln Thr Ser Glu Ile Asn Lys Leu Gln Asp Lys Asn Ser Phe Leu Glu
 180 185 190

Lys Lys Val Leu Ala Met Glu Asp Lys His Ile Ile Gln Leu Gln Ser
 195 200 205

Ile Lys Glu Glu Lys Asp Gln Leu Gln Val Leu Val Ser Lys Gln Asn
 210 215 220

Ser Ile Ile Glu Glu Leu Glu Lys Lys Ile Val Thr Ala Thr Val Asn
 225 230 235 240

Asn Ser Val Leu Gln Lys Gln Gln His Asp Leu Met Glu Thr Val Asn
 245 250 255

Asn Leu Leu Thr Met Met Ser Thr Ser Asn Ser Ala Lys Asp Pro Thr
 260 265 270

Val Ala Lys Glu Glu Gln Ile Ser Phe Arg Asp Cys Ala Glu Val Phe
 275 280 285

Lys Ser Gly His Thr Thr Asn Gly Ile Tyr Thr Leu Thr Phe Pro Asn
 290 295 300

Ser Thr Glu Glu Ile Lys Ala Tyr Cys Asp Met Glu Ala Gly Gly Gly
305 310 315 320

Gly Trp Thr Ile Ile Gln Arg Arg Glu Asp Gly Ser Val Asp Phe Gln
325 330 335

Arg Thr Trp Lys Glu Tyr Lys Val Gly Phe Gly Asn Pro Ser Gly Glu
340 345 350

Tyr Trp Leu Gly Asn Glu Phe Val Ser Gln Leu Thr Asn Gln Gln Arg
355 360 365

Tyr Val Leu Lys Ile His Leu Lys Asp Trp Glu Gly Asn Glu Ala Tyr
370 375 380

Ser Leu Tyr Glu His Phe Tyr Leu Ser Ser Glu Glu Leu Asn Tyr Arg
385 390 395 400

Ile His Leu Lys Gly Leu Thr Gly Thr Ala Gly Lys Ile Ser Ser Ile
405 410 415

Ser Gln Pro Gly Asn Asp Phe Ser Thr Lys Asp Gly Asp Asn Asp Lys
420 425 430

Cys Ile Cys Lys Cys Ser Gln Met Leu Thr Gly Gly Trp Trp Phe Asp
435 440 445

Ala Cys Gly Pro Ser Asn Leu Asn Gly Met Tyr Tyr Pro Gln Arg Gln
450 455 460

Asn Thr Asn Lys Phe Asn Gly Ile Lys Trp Tyr Tyr Trp Lys Gly Ser
465 470 475 480

Gly Tyr Ser Leu Lys Ala Thr Thr Met Met Ile Arg Pro Ala Asp Phe
485 490 495

<210> 16
<211> 496
<212> PRT
<213> mouse

<400> 16

Met Trp Gln Ile Ile Phe Leu Thr Phe Gly Trp Asp Leu Val Leu Ala
1 5 10 15

Ser Ala Tyr Ser Asn Phe Arg Lys Ser Val Asp Ser Thr Gly Arg Arg
20 25 30

Gln Tyr Gln Val Gln Asn Gly Pro Cys Ser Tyr Thr Phe Leu Leu Pro
21

35

40

45

Glu Thr Asp Ser Cys Arg Ser Ser Ser Ser Pro Tyr Met Ser Asn Ala
 50 55 60

Val Gln Arg Asp Ala Pro Leu Asp Tyr Asp Asp Ser Val Gln Arg Leu
 65 70 75 80

Gln Val Leu Glu Asn Ile Leu Glu Asn Asn Thr Gln Trp Leu Met Lys
 85 90 95

Leu Glu Asn Tyr Ile Gln Asp Asn Met Lys Lys Glu Met Val Glu Ile
 100 105 110

Gln Gln Asn Val Val Gln Asn Gln Thr Ala Val Met Ile Glu Ile Gly
 115 120 125

Thr Ser Leu Leu Asn Gln Thr Ala Ala Gln Thr Arg Lys Leu Thr Asp
 130 135 140

Val Glu Ala Gln Val Leu Asn Gln Thr Thr Arg Leu Glu Leu Gln Leu
 145 150 155 160

Leu Gln His Ser Ile Ser Thr Asn Lys Leu Glu Lys Gln Ile Leu Asp
 165 170 175

Gln Thr Ser Glu Ile Asn Lys Leu Gln Asn Lys Asn Ser Phe Leu Glu
 180 185 190

Gln Lys Val Leu Asp Met Glu Gly Lys His Ser Glu Gln Leu Gln Ser
 195 200 205

Met Lys Glu Gln Lys Asp Glu Leu Gln Val Leu Val Ser Lys Gln Ser
 210 215 220

Ser Val Ile Asp Glu Leu Glu Lys Lys Leu Val Thr Ala Thr Val Asn
 225 230 235 240

Asn Ser Leu Leu Gln Lys Gln Gln His Asp Leu Met Glu Thr Val Asn
 245 250 255

Ser Leu Leu Thr Met Met Ser Ser Pro Asn Ser Lys Ser Ser Val Ala
 260 265 270

Ile Arg Lys Glu Glu Gln Thr Thr Phe Arg Asp Cys Ala Glu Ile Phe
 275 280 285

Lys Ser Gly Leu Thr Thr Ser Gly Ile Tyr Thr Leu Thr Phe Pro Asn
 290 295 300

Ser Thr Glu Glu Ile Lys Ala Tyr Cys Asp Met Asp Val Gly Gly Gly
305 310 315 320

Gly Trp Thr Val Ile Gln His Arg Glu Asp Gly Ser Val Asp Phe Gln
325 330 335

Arg Thr Trp Lys Glu Tyr Lys Glu Gly Phe Gly Asn Pro Leu Gly Glu
340 345 350

Tyr Trp Leu Gly Asn Glu Phe Val Ser Gln Leu Thr Gly Gln His Arg
355 360 365

Tyr Val Leu Lys Ile Gln Leu Lys Asp Trp Glu Gly Asn Glu Ala His
370 375 380

Ser Leu Tyr Asp His Phe Tyr Leu Ala Gly Glu Glu Ser Asn Tyr Arg
385 390 395 400

Ile His Leu Thr Gly Leu Thr Gly Thr Ala Ala Lys Ile Ser Ser Ile
405 410 415

Ser Gln Pro Gly Ser Asp Phe Ser Thr Lys Asp Ser Asp Asn Asp Lys
420 425 430

Cys Ile Cys Lys Cys Ser Gln Met Leu Ser Gly Gly Trp Trp Phe Asp
435 440 445

Ala Cys Gly Pro Ser Asn Leu Asn Gly Gln Tyr Tyr Pro Gln Lys Gln
450 455 460

Asn Thr Asn Lys Phe Asn Gly Ile Lys Trp Tyr Tyr Trp Lys Gly Ser
465 470 475 480

Gly Tyr Ser Leu Lys Ala Thr Thr Met Met Ile Arg Pro Ala Asp Phe
485 490 495

<210> 17
<211> 503
<212> PRT
<213> Homo sapiens

<400> 17

Met Leu Ser Gln Leu Ala Met Leu Gln Gly Ser Leu Leu Leu Val Val
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Ala Thr Met Ser Val Ala Gln Gln Thr Arg Gln Glu Ala Asp Arg Gly
20 25 30

Cys Glu Thr Leu Val Val Gln His Gly His Cys Ser Tyr Thr Phe Leu
35 40 45

Leu Pro Lys Ser Glu Pro Cys Pro Pro Gly Pro Glu Val Ser Arg Asp
50 55 60

Ser Asn Thr Leu Gln Arg Glu Ser Leu Ala Asn Pro Leu His Leu Gly
65 70 75 80

Lys Leu Pro Thr Gln Gln Val Lys Gln Leu Glu Gln Ala Leu Gln Asn
85 90 95

Asn Thr Gln Trp Leu Lys Lys Leu Glu Arg Ala Ile Lys Thr Ile Leu
100 105 110

Arg Ser Lys Leu Glu Gln Val Gln Gln Gln Met Ala Gln Asn Gln Thr
115 120 125

Ala Pro Met Leu Glu Leu Gly Thr Ser Leu Leu Asn Gln Thr Thr Ala
130 135 140

Gln Ile Arg Lys Leu Thr Asp Met Glu Ala Gln Leu Leu Asn Gln Thr
145 150 155 160

Ser Arg Met Asp Ala Gln Met Pro Glu Thr Phe Leu Ser Thr Asn Lys
165 170 175

Leu Glu Asn Gln Leu Leu Leu Gln Arg Gln Lys Leu Gln Gln Leu Gln
180 185 190

Gly Gln Asn Ser Ala Leu Glu Lys Arg Leu Gln Ala Leu Glu Thr Lys
195 200 205

Gln Gln Glu Glu Leu Ala Ser Ile Leu Ser Lys Lys Ala Lys Leu Leu
210 215 220

Asn Thr Leu Ser Arg Gln Ser Ala Ala Leu Thr Asn Ile Glu Arg Gly
225 230 235 240

Leu Arg Gly Val Arg His Asn Ser Ser Leu Leu Gln Asp Gln Gln His
245 250 255

Ser Leu Arg Gln Leu Leu Val Leu Leu Arg His Leu Val Gln Glu Arg
260 265 270

Ala Asn Ala Ser Ala Pro Ala Phe Ile Met Ala Gly Glu Gln Val Phe
275 280 285

Gln Asp Cys Ala Glu Ile Gln Arg Ser Gly Ala Ser Ala Ser Gly Val
24

290

295

300

Tyr Thr Ile Gln Val Ser Asn Ala Thr Lys Pro Arg Lys Val Phe Cys
305 310 315 320

Asp Leu Gln Ser Ser Gly Gly Arg Trp Thr Leu Ile Gln Arg Arg Glu
325 330 335

Asn Gly Thr Val Asn Phe Gln Arg Asn Trp Lys Asp Tyr Lys Gln Gly
340 345 350

Phe Gly Asp Pro Ala Gly Glu His Trp Leu Gly Asn Glu Val Val His
355 360 365

Gln Leu Thr Arg Arg Ala Ala Tyr Ser Leu Arg Val Glu Leu Gln Asp
370 375 380

Trp Glu Gly His Glu Ala Tyr Ala Gln Tyr Glu His Phe His Leu Gly
385 390 395 400

Ser Glu Asn Gln Leu Tyr Arg Leu Ser Val Val Gly Tyr Ser Gly Ser
405 410 415

Ala Gly Arg Gln Ser Ser Leu Val Leu Gln Asn Thr Ser Phe Ser Thr
420 425 430

Leu Asp Ser Asp Asn Asp His Cys Leu Cys Lys Cys Ala Gln Val Met
435 440 445

Ser Gly Gly Trp Trp Phe Asp Ala Cys Gly Leu Ser Asn Leu Asn Gly
450 455 460

Val Tyr Tyr His Ala Pro Asp Asn Lys Tyr Lys Met Asp Gly Ile Arg
465 470 475 480

Trp His Tyr Phe Lys Gly Pro Ser Tyr Ser Leu Arg Ala Ser Arg Met
485 490 495

Met Ile Arg Pro Leu Asp Ile
500

<210> 18
<211> 509
<212> PRT
<213> mouse

<400> 18

Met Leu Cys Gln Pro Ala Met Leu Leu Asp Gly Leu Leu Leu Leu Ala
1 5 10 15

Thr Met Ala Ala Ala Gln His Arg Gly Pro Glu Ala Gly Gly His Arg
 20 25 30

Gln Ile His Gln Val Arg Arg Gly Gln Cys Ser Tyr Thr Phe Val Val
 35 40 45

Pro Glu Pro Asp Ile Cys Gln Leu Ala Pro Thr Ala Ala Pro Glu Ala
 50 55 60

Leu Gly Gly Ser Asn Ser Leu Gln Arg Asp Leu Pro Ala Ser Arg Leu
 65 70 75 80

His Leu Thr Asp Trp Arg Ala Gln Arg Ala Gln Arg Ala Gln Arg Val
 85 90 95

Ser Gln Leu Glu Lys Ile Leu Glu Asn Asn Thr Gln Trp Leu Leu Lys
 100 105 110

Leu Glu Gln Ser Ile Lys Val Asn Leu Arg Ser His Leu Val Gln Ala
 115 120 125

Gln Gln Asp Thr Ile Gln Asn Gln Thr Thr Thr Met Leu Ala Leu Gly
 130 135 140

Ala Asn Leu Met Asn Gln Thr Lys Ala Gln Thr His Lys Leu Thr Ala
 145 150 155 160

Val Glu Ala Gln Val Leu Asn Gln Thr Leu His Met Lys Thr Gln Met
 165 170 175

Leu Glu Asn Ser Leu Ser Thr Asn Lys Leu Glu Arg Gln Met Leu Met
 180 185 190

Gln Ser Arg Glu Leu Gln Arg Leu Gln Gly Arg Asn Arg Ala Leu Glu
 195 200 205

Thr Arg Leu Gln Ala Leu Glu Ala Gln His Gln Ala Gln Leu Asn Ser
 210 215 220

Leu Gln Glu Lys Arg Glu Gln Leu His Ser Leu Leu Gly His Gln Thr
 225 230 235 240

Gly Thr Leu Ala Asn Leu Lys His Asn Leu His Ala Leu Ser Ser Asn
 245 250 255

Ser Ser Ser Leu Gln Gln Gln Gln Gln Gln Leu Thr Glu Phe Val Gln
 260 265 270

Arg Leu Val Arg Ile Val Ala Gln Asp Gln His Pro Val Ser Leu Lys
 275 280 285
 Thr Pro Lys Pro Val Phe Gln Asp Cys Ala Glu Ile Lys Arg Ser Gly
 290 295 300
 Val Asn Thr Ser Gly Val Tyr Thr Ile Tyr Glu Thr Asn Met Thr Lys
 305 310 315 320
 Pro Leu Lys Val Phe Cys Asp Met Glu Thr Asp Gly Gly Gly Trp Thr
 325 330 335
 Leu Ile Gln His Arg Glu Asp Gly Ser Val Asn Phe Gln Arg Thr Trp
 340 345 350
 Glu Glu Tyr Lys Glu Gly Phe Gly Asn Val Ala Arg Glu His Trp Leu
 355 360 365
 Gly Asn Glu Ala Val His Arg Leu Thr Ser Arg Thr Ala Tyr Leu Leu
 370 375 380
 Arg Val Glu Leu His Asp Trp Glu Gly Arg Gln Thr Ser Ile Gln Tyr
 385 390 395 400
 Glu Asn Phe Gln Leu Gly Ser Glu Arg Gln Arg Tyr Ser Leu Ser Val
 405 410 415
 Asn Asp Ser Ser Ser Ser Ala Gly Arg Lys Asn Ser Leu Ala Pro Gln
 420 425 430
 Gly Thr Lys Phe Ser Thr Lys Asp Met Asp Asn Asp Asn Cys Met Cys
 435 440 445
 Lys Cys Ala Gln Met Leu Ser Gly Gly Trp Trp Phe Asp Ala Cys Gly
 450 455 460
 Leu Ser Asn Leu Asn Gly Ile Tyr Tyr Ser Val His Gln His Leu His
 465 470 475 480
 Lys Ile Asn Gly Ile Arg Trp His Tyr Phe Arg Gly Pro Ser Tyr Ser
 485 490 495
 Leu His Gly Thr Arg Met Met Leu Arg Pro Met Gly Ala
 500 505

<210> 19
 <211> 60
 <212> DNA
 <213> Homo sapiens

<400> 19
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<210> 20
 <211> 60
 <212> DNA
 <213> mouse

<400> 20
 ctttgcacta aagaaggtgt tttgctaaag ggaggaaaaa gagaagaaga gaaaccattt 60

<210> 21
 <211> 126
 <212> DNA
 <213> Homo sapiens

<400> 21
 aatcagcgcc gaagtccaga aaacagtggg agaagatata accggattca acatgggcaa 60
 tgtgcctaca ctttcattct tccagaacac gatggcaact gtcgtgagag tacgacagac 120
 cagtac 126

<210> 22
 <211> 126
 <212> DNA
 <213> mouse

<400> 22
 aaccagcgcc gaaatccaga aaacggaggg agaagatata accggattca acatgggcaa 60
 tgtgcctaca ctttcattct tccagaacac gacgggaact gccgtgagag tgcgacagag 120
 cagtac 126

<210> 23
 <211> 1419
 <212> DNA
 <213> Homo sapiens

<400> 23
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 aatcagcgcc gaagtccaga aaacagtggg agaagatata accggattca acatgggcaa 120
 tgtgcctaca ctttcattct tccagaacac gatggcaact gtcgtgagag tacgacagac 180
 cagtacaaca caaacgctct gcagagagat gctccacacg tggaaccgga tttctcttcc 240
 cagaaacttc aacatctgga acatgtgatg gaaaattata ctcagtggct gcaaaaaactt 300
 gagaattaca ttgtggaaaa catgaagtcg gagatggccc agatacagca gaatgcagtt 360
 cagaaccaca cggctaccat gctggagata ggaaccagcc tcctctctca gactgcagag 420
 cagaccagaa agctgacaga tgttgagacc caggtactaa atcaaaacttc tcgacttgag 480
 atacagctgc tggagaattc attatccacc tacaagctag agaagcaact tcttcaacag 540
 acaaataaaa tcttgaagat ccatgaaaaa aacagtttat tagaacataa aatcttagaa 600

atggaaggaa aacacaagga agagttggac accttaaagg aagagaaaga gaaccttcaa	660
ggcttgggta ctcgtaaac atatataatc caggagctgg aaaagcaatt aaacagagct	720
accaccaaca acagtgtcct tcagaagcag caactggagc tgatggacac aagagactgt	780
gcagatgtat atcaagctgg ttttaataaa agtggaatct acactattta tattaataat	840
atgccagaac ccaaaaaggt gttttgcaat atggatgtca atgggggagg ttggactgta	900
atacaacatc gtgaagatgg aagtctagat ttccaaagag gctggaagga atataaaatg	960
ggttttggaa atccctccgg tgaatatgg ctggggaatg agtttatttt tgccattacc	1020
agtcagaggc agtacatgct aagaattgag ttaatggact gggaaggga ccgagcctat	1080
tcacagtatg acagattcca cataggaaat gaaaagcaaa actatagggt gtatttaaaa	1140
ggtcacactg ggacagcagg aaaacagagc agcctgatct tacacgggtg tgatttcagc	1200
actaaagatg ctgataatga caactgtatg tgcaaagtgt ccctcatgtt aacaggagga	1260
tggtgggttg atgcttgtgg cccctccaat ctaaattggaa tgttctatac tgcgggacaa	1320
aaccatggaa aactgaatgg gataaagtgg cactacttca aagggccag ttactcctta	1380
cgttccacaa ctatgatgat tcgaccttta gatTTTTga	1419

<210> 24
 <211> 1419
 <212> DNA
 <213> mouse

<400> 24	
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aaccagcgcc gaaatccaga aaacggaggg agaagatata accggattca acatgggcaa	120
tgtgcctaca ctttcattct tccagaacac gacgggaact gccgtgagag tgcgacagag	180
cagtacaaca ccaacgctct gcaaagggat gctccacacg tggagccgga tttctcttcc	240
cagaaacttc agcatctgga gcatgtgatg gaaaattata ctcagtggct gcaaaaactt	300
gagaattaca ttgtggaaaa tatgaatcg gagatggccc agatacaaca gaatgctgtt	360
caaaaccaca cggccaccat gcttgagata ggaaccagtc tcttatctca gactgcagag	420
cagacccgaa agctgacaga tgttgagacc caggactaa atcaaacatc ccgacttgaa	480
atacaactgc tagagaattc attatcaaca tacaagctag agaagcaact tctccaacag	540
acaaatgaaa ttctgaagat tcacgaaaaa aacagtttac tagagcacia aatcttagaa	600
atggagggaa aacacaaaga agaattggac accttgaagg aggagaaaga aaaccttcaa	660
ggcttgggtt ctcgtcagac attcatcatc caggagttgg agaagcaact tagtagagct	720
accaacaaca acagcatcct gcagaagcaa caactggagc tcatggacac acgagactgt	780
gcagatgtat atcaagctgg ttttaataaa agtggaatct acactattta ttttaataat	840
atgccagaac ccaaaaaggt attttgcaat atggatgtga atgggggagg ttggacagta	900

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agtcagaggc	agtacatgct	gaggattgag	ctgatggact	gggaagggaa	ccgagcctac	1080
tcacagtacg	acagattcca	cataggaaat	gaaaagcaga	actatagggt	atatttataaa	1140
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aatcatggaa	aactgaatgg	gataaagtgg	cactacttca	aagggccccag	ttactcctta	1380
cgttccacca	ccatgatgat	ccggcccttg	gaacttttga			1419

<210> 25
 <211> 1371
 <212> DNA
 <213> homo sapiens

<400> 25	
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tgactcacat	aggggtgcagc
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agatgctcca	cacgtggaac
cggattttctc	ttcccagaaa
	120
cttcaacatc	tggaacatgt
gatggaaaat	tatactcagt
ggctgcaaaa	acttgagaat
	180
tacattgtgg	aaaacatgaa
gtcggagatg	gccagatac
agcagaatgc	agttcagaac
	240
cacacggcta	ccatgctgga
gataggaacc	agcctcctct
ctcagactgc	agagcagacc
	300
agaaagctga	cagatgttga
gaccaggtga	ctaaatcaaa
cttctcgact	tgagatacag
	360
ctgctggaga	attcattatc
cacctacaag	ctagagaagc
aactttcttca	acagacaaat
	420
gaaatcttga	agatccatga
aaaaaacagt	ttattagaac
ataaaatctt	agaaatggaa
	480
ggaaaacaca	aggaagagtt
ggacacctta	aaggaagaga
aagagaacct	tcaaggcttg
	540
gttactcgtc	aaacatatat
aatccaggag	ctggaaaagc
aattaaacag	agctaccacc
	600
aacaacagtg	tccttcagaa
gcagcaactg	gagctgatgg
acacagtcca	caaccttgct
	660
aatctttgca	ctaaagaagg
tgttttacta	aaggaggaa
aaagagagga	agagaaacca
	720
tttagagact	gtgcagatgt
atatcaagct	ggttttaata
aaagtggaa	ctacactatt
	780
tatatataata	atatgccaga
acccaaaaag	gtgttttgca
atatggatgt	caatggggga
	840
ggttggaactg	taataacaaca
tcgtgaagat	ggaagtctag
atttccaaag	aggctggaag
	900
gaatataaaa	tgggttttgg
aaatccctcc	ggtgaatatt
ggctggggaa	tgagtttatt
	960
tttgccatta	ccagtcagag
gcagtacatg	ctaagaattg
agttaatgga	ctgggaaggg
	1020
aaccgagcct	attcacagta
tgacagattc	cacataggaa
atgaaaagca	aaactatagg
	1080
ttgtatttaa	aaggtcacac
tgggacagca	ggaaaacaga
gcagcctgat	cttacacggt
	1140
gctgatttca	gcactaaaga
tgctgataat	gacaactgta
tgtgcaaattg	tgccctcatg
	1200

ttaacaggag gatggtggtt tgatgcttgt ggccctcca atctaaatgg aatgttctat	1260
actgcgggac aaaaccatgg aaaactgaat gggataaagt ggcactactt caaagggccc	1320
agttactcct tacgttccac aactatgatg attcgacctt tagatttttg a	1371

<210> 26
 <211> 1371
 <212> DNA
 <213> mouse

<400> 26	
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aacaccaacg ctctgcaaag ggatgctcca cagctggagc cggatttctc ttcccagaaa	120
cttcagcatc tggagcatgt gatggaaaat tatactcagt ggctgcaaaa acttgagaat	180
tacattgtgg aaaatatgaa gtcggagatg gccagatac aacagaatgc tgttcaaaac	240
cacacggcca ccatgcttga gataggaacc agtctcttat ctgagactgc agagcagacc	300
cgaagctga cagatgttga gaccaggtta ctaaatacaa catcccgact tgaaatacaa	360
ctgctagaga attcattatc aacatacaag ctagagaagc aacttctcca acagacaaat	420
gaaattctga agattcacga aaaaaacagt ttactagagc acaaaatctt agaaatggag	480
ggaaaacaca aagaagaatt ggacaccttg aaggaggaga aagaaaacct tcaaggcttg	540
gtttctcgtc agacattcat catccaggag ttggagaagc aacttagtag agctaccaac	600
aacaacagca tcctgcagaa gcaacaactg gagctcatgg acacagttca taacctgtc	660
agcctttgca ctaaagaagg tgttttgcta aaggaggaa aaagagaaga agagaaacca	720
tttcgagact gtgcagatgt atatcaagct ggttttaata aaagtggaat ctacactatt	780
tattttaata atatgccaga acccaaaaag gtattttgca atatggatgt gaatggggga	840
ggttggacag taatacaaca ccgggaagat ggaagcctgg atttccagag gggctggaag	900
gagtataaaa tgggttttgg gaatccctct ggtgaatatt ggctcgggaa cgagttcatt	960
tttgcaataa ccagtcagag gcagtacatg ctgaggattg agctgatgga ctgggaaggg	1020
aaccgagcct actcacagta cgacagattc cacataggaa atgaaaagca gaactatagg	1080
ttatatattaa aaggtcacac agggacagca ggcaaacaga gcagcttgat cttacacggt	1140
gctgatttca gcacgaagga tgctgataac gacaactgta tgtgcaaatg cgctctcatg	1200
ctaacaggag gttggtggtt cgatgcctgt ggcccttcca atctaaatgg aatgttctac	1260
actgcgggac aaaatcatgg aaaactgaat gggataaagt ggcactactt caaagggccc	1320
agttactcct tacgttccac caccatgatg atccggccct tggacttttg a	1371

<210> 27
 <211> 1293
 <212> DNA
 <213> Homo sapiens

<400> 27
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<211> 1293
<212> DNA
<213> mouse

<400> 28
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<210> 29
 <211> 708
 <212> DNA
 <213> Homo sapiens

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<212> DNA
<213> mouse

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<210> 31
<211> 2149
<212> DNA
<213> Homo sapiens

<400> 31
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 <211> 2044
 <212> DNA
 <213> mouse

<400> 32	
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 <212> DNA
 <213> Homo sapiens

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 <212> DNA
 <213> mouse

<220>
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<210> 35
 <211> 1957
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc feature
 <222> (1497)..(1497)
 <223> n is a, c, g, or t

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 <213> mouse

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